Risk Management

Outline

- **DoD Risk Management Policy**
- **DCMC Risk Management Policy**
- **DoD Risk Management Guidance**
- **Case Studies**

DoD Policy Requires Risk Management

"PMs and other acquisition managers shall continuously assess program risks. Risks must be well understood, and risk management approaches developed, before decision authorities can authorize a program to proceed into the next phase of the acquisition process."

DoDD 5000.1 Section D.1.d
Risk Assessment and Management

DoD Policy Requires Risk Management

"DoD oversight activities (i.e., contract administration offices, contract offices, technical activities, and program management offices) shall consider all relevant and credible information that might mitigate risks and the need for DoD oversight before designing and applying direct DoD oversight of contractor operations… ***The Commander, DCMC shall make information relating to audits, reviews, or ratings of contractor operations, systems, or performance accessible to DoD buying and technical activities*****."**

DoD 5000.2-R Section 3.3.5.6
Information Sharing and DoD Oversight

DCMC Policy Status

- **Supplier Risk Management One Book Chapter:**
  - Posted to the web in October, 1999
  - **18** "Supporting" Process Owners currently:
    - Updating their policy--**needs to be in line** with the "overarching" Supplier Risk Management Chapter. *Guidebooks will be updated as applicable.*
    - Developing **"process risk matrices"**
      - See next three slides for partial CM example
    - Developing **training strategy**--will address function specific application.

	Performance	
High	• Most of the elements under Moderate Risk are evident and the CM performances is unacceptable; adverse events are highly likely to occur • There is no CM Plan • Design baseline is unknown • System interfaces poorly defined • Drawing releases/changes and/or waivers/deviations not tracked	• Configuration baseline is unknown • CM requirements have not been flowed down to subcontractors • No metrics to identify negative trends; no training provided in CM • No formal release/change board is in place
Medium	• CM plan is incomplete • Specifications/drawings do not reflect latest configurations • Manufacturing building to incorrect drawing releases • Large increases in class II changes or type II material defects	• Functional/allocated baselines not yet established • Interface requirements not identified; drawing releases late • Changes incorrectly classified • Configuration Items not traceable to WBS elements
Low	• CM system ensures control of all documentation, physical media, and parts comprising the product • CM system addresses configura-tion audits, status accounting, identification, and control • CM plan complete, comprehensive • CM plan takes into account vendors, subcontractors, customer • Specifications, drawing releases are properly managed • Functional/allocated baselines established • Configuration updates are timely, based on feedback from users	• Configuration Items are traceable to WBS elements • Interface requirements identified and tracked • Manufacturing work instructions reflect latest changes • Changes are properly classified and executed in timely manner • Product physical configuration matches technical documentation • Functional audits ensure product achieves specified requirements

	Cost	
High	• Adverse cost events highly likely to occur • Major cost impacts are due to CM concerns • CAIV not used • 10% or greater variance	• Impact to program schedules due to CM • Unforeseen CM cost in-creases occur regularly • No cost incentives • Life Cycle Cost not considered
Medium	• Adverse cost events likely to occur • Minor slips in key CM milestones; not able to meet need dates • Cost impacts occurring in program due to CM	• CM schedule slippage affecting costs • No Value Engineering program • Tradeoffs consistently favor performance or schedule • 5% to 10% variance
Low	• Performance is low risk • Very few cost impacts due to CM • Cost variance under 5% • No slippage of CM critical path events • Schedule variance less than 5% • No unforeseen cost events have occurred due to CM • Cost control has a high priority	• Warranties are used as a cost control mechanism • Value Engineering program is in place and effective • GIDEP used to get info on nonconforming product, reliability/part problems, and diminishing manu-facturing resources

	Schedule	
High	• Adverse schedule events highly likely to occur • Major slips in key milestones or critical path impacted • CM schedule for audits not integrated with program plan • Poor configuration control is impacting program schedules	• 10% or greater variance in CM control accounts • Unforeseen schedule impacts to CM plan occur regularly • Drawing releases late or wrong drawings released • Manufacturing delayed due to configuration problems
Medium	• Adverse schedule events likely to occur • Minor slips in key CM milestones; not able to meet need dates • There isn't budget available to address CM schedule slips • Not funding CM is used to compensate for cost overruns	• Unforeseen events adversely affect CM schedule • Tradeoffs consistently favor cost or performance • 5% to 10% schedule variance in CM control accounts
Low	• Performance is low risk • Very few impacts to CM schedules and audits • Less than 5% schedule variance in CM control accounts • No slippage of CM critical path events	• Cost variance less than 5% • No unforeseen schedule events are affecting CM • Drawings released on time • Schedule has a high priority

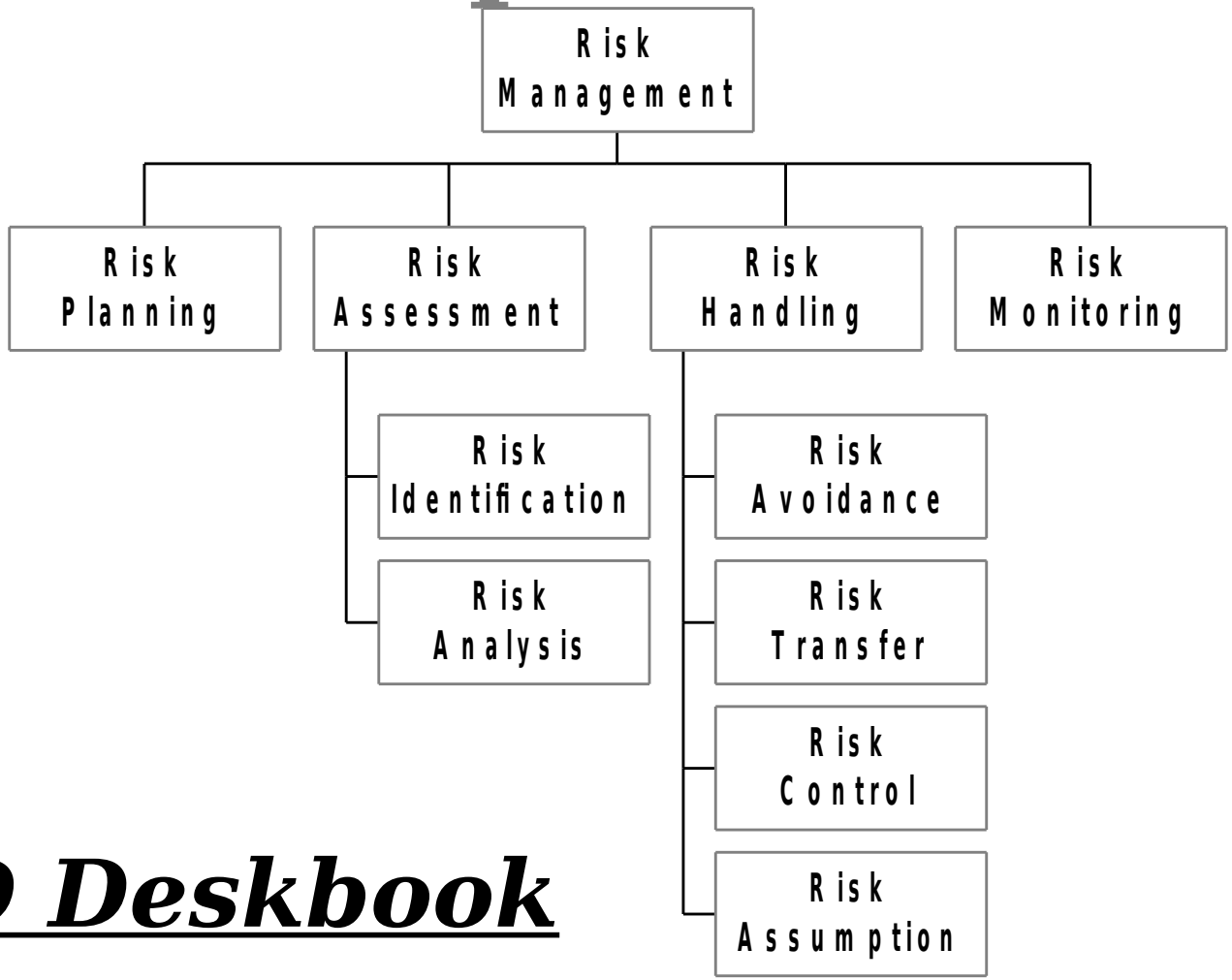
Supplier Risk Management

- DCMC's Supplier Risk Management Program:
  - Integrates risk assessment and surveillance planning processes--all in an IPT environment.
  - Promotes a consistent and effective risk management methodology DCMC-wide.
  - Is consistent with DoD Risk Management Guidance--Planning, Assessment, Handling, Monitoring and Documentation.
  - Implements Revolution in Business Affairs (RBA) Task Force recommendation--**Apply Risk Management Principles:** *"In the post revolution era, DCMC will expand risk management to cover the entire range of operations…"*

Supplier Risk Management

- Supplier Risk Management One Book Chapter will be the “overarching” policy.
- **“CAO management, technical assessment groups, and operations personnel must use a risk management approach comprised of risk planning, assessment, handling, monitoring, and documentation to assess contractor performance and determine and execute CAO actions.”**
- Functional application (Engineering, QA, IS, Contracts, Property, Safety, & Packaging) is key to implementation with emphasis to IPT approach, where appropriate.

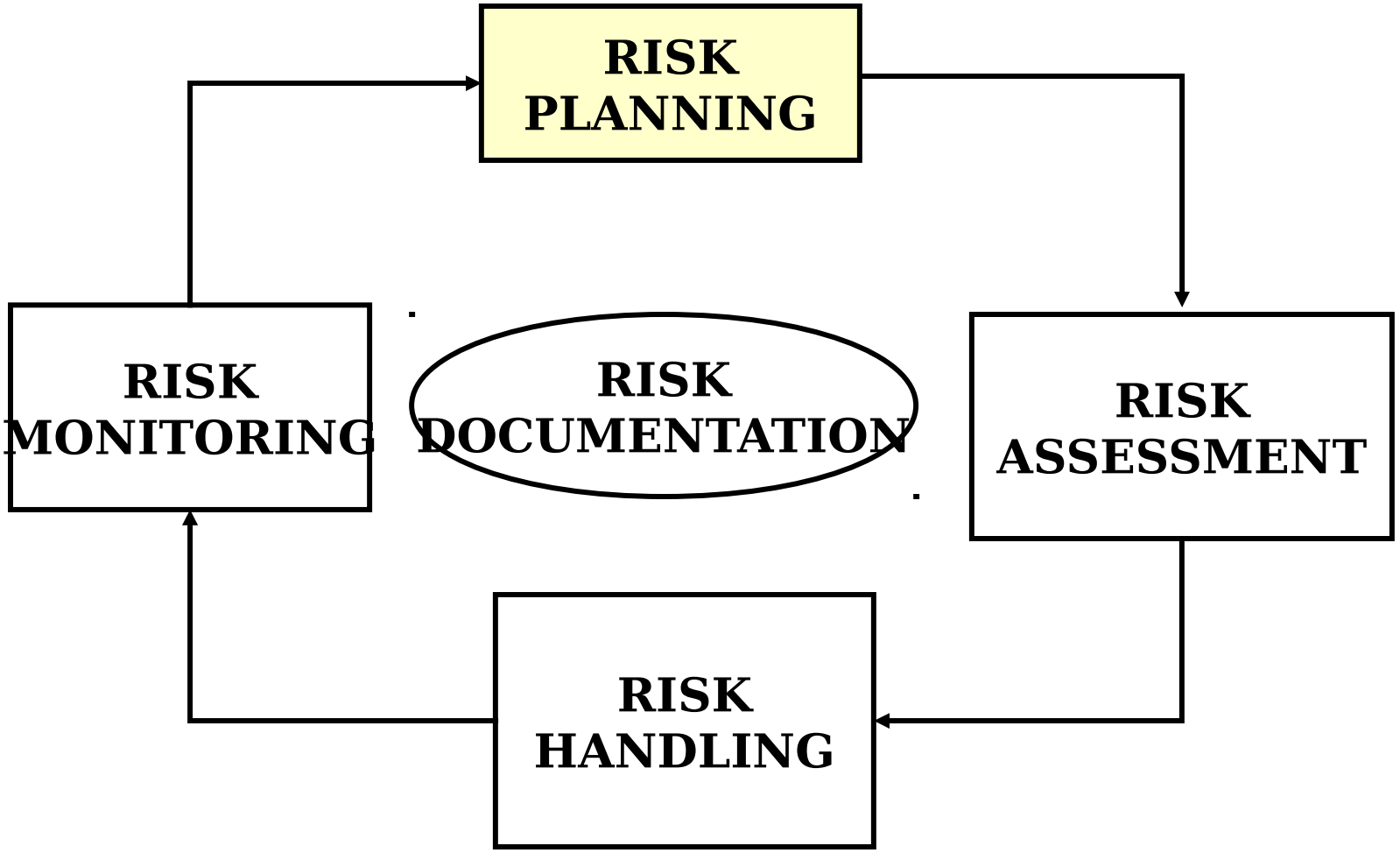
Risk Management Sub-processes



DOD Deskbook

Risk Documentation

Risk Management Cycle



Risk Planning

Risk Planning is “the process of developing and documenting

- an organized, comprehensive, and interactive strategy and
- methods for identifying and tracking risk areas, developing risk-mitigation plans,
- performing continuous risk assessments to determine how risks have changed, and
- planning adequate resources”.

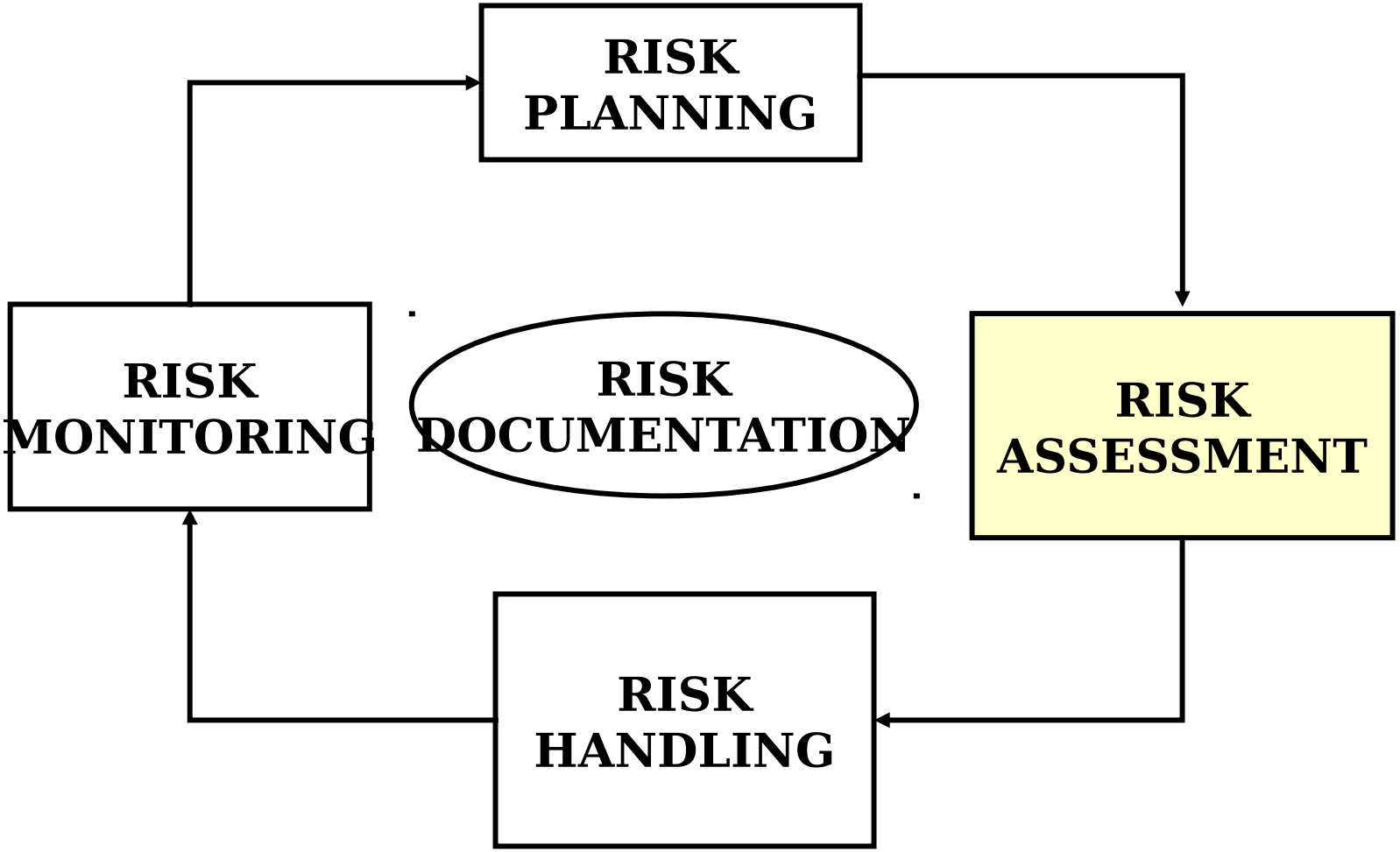
Risk Planning

“CAO operations teams or functional specialists must review contracts/mods, along with any other customer guidance, to gain a clear understanding of customer needs and expectations. The purpose of the review is to begin the process of identifying the contractor technical and business systems and key processes that require close scrutiny**.”**

Contractor Technical and Business Systems and Key Processes

- Systems Engineering
- Configuration Management
- Systems Safety
- Engineering Management
- Human Factors Engineering
- Modeling and Simulation
- Test and Evaluation
- Integrated Logistics
- Reliability & Maintainability
- Design Engineering
- Research & Development
- Open Systems
- New subsystem development
- Key subcontractors

Risk Management Cycle



Risk Assessment

Risk Assessment is “the process of identifying and analyzing program areas and critical technical process risks to increase the likelihood of meeting performance, schedule, and cost objectives.

- Risk Identification is the process of examining the program areas and each critical technical process to identify and document the associated risk.
- Risk Analysis is the process of examining each identified risk area or process to refine the description of risk, isolating the cause, and determining the effects.”

DoD Deskbook

Risk Identification Sources

- **Contractor Risk Identification**
- **Contractor's Risk Management Plan**
- **IBR Results**
- **Program Reviews Results**
- ***Contractor's WBS***
- **Program Schedules**
- **Contract PERT Charts**
- **Contractor Technical Capability**
- **PI Reports**
- **Contractor Past Performance**
- **Preaward Surveys**

DCMC Risk Assessment

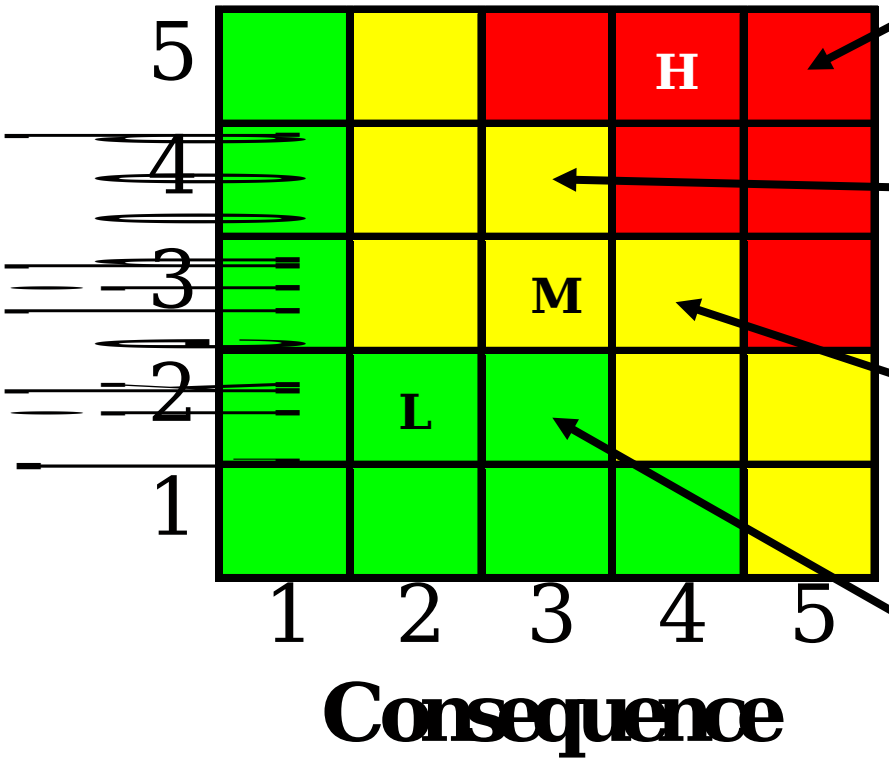
"DCMC CAO management must assure a risk assessment is performed for all suppliers. Three principal areas must be considered in the risk assessment: performance, schedule, and cost."

- "The operations team or functional specialist must assign a risk rating to each system or key process."
- "System or key process risk ratings must be supported by data..."

DCMC Risk Assessment

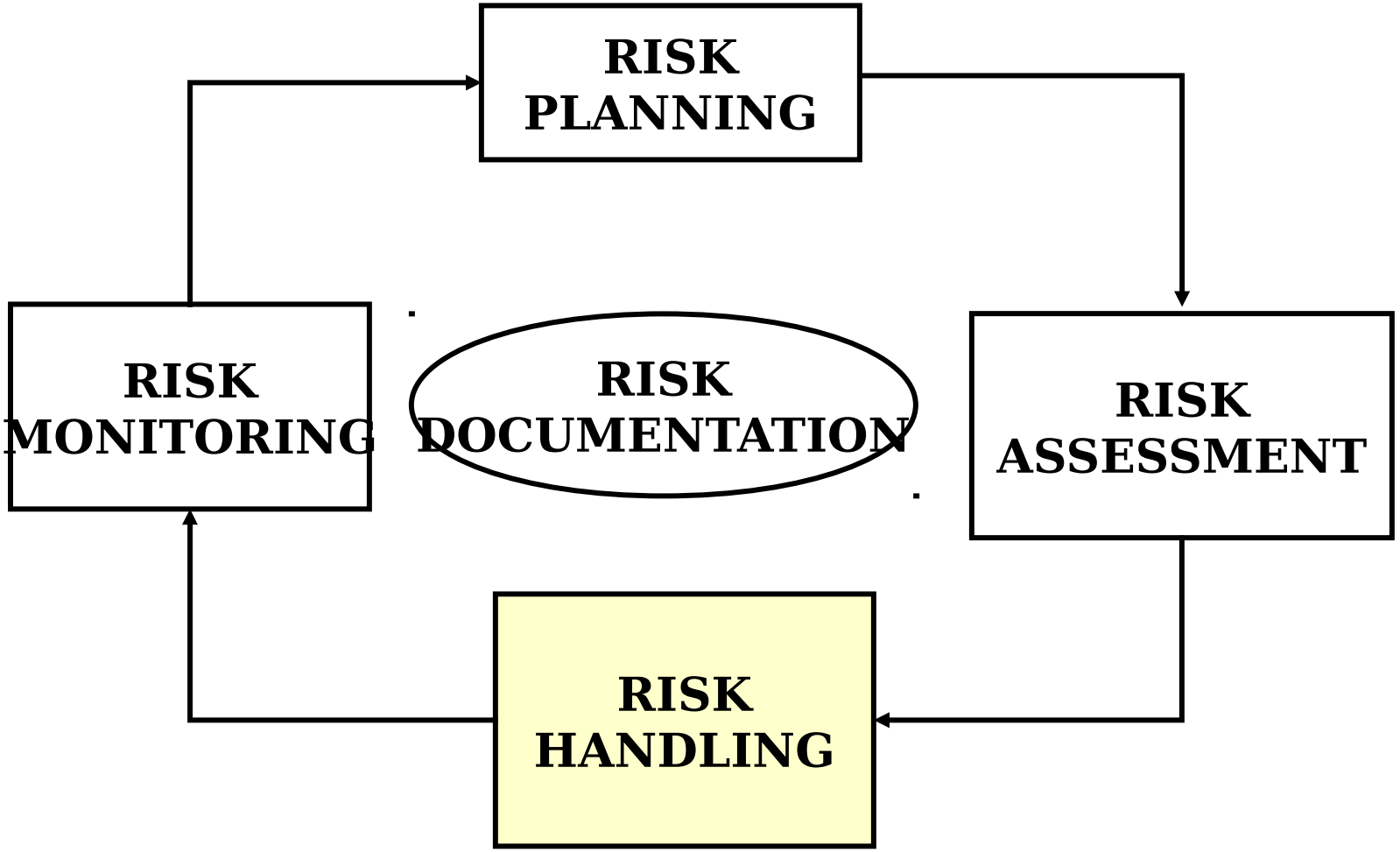
"The Risk ratings are based on the results of the combination of high, moderate and low ratings for *probability/likelihood of occurrence and consequence of failure,* and are a measure of the supplier's experience and performance as related to the capability of their systems and key processes to meet contract requirements."

Risk Assessment



- Hydraulic Drive Unit Reliability
- Parts Obsolescence
- RCS Producibility
- Blisk Tip Cracks
- Pylon/Wing Interface Load

Risk Management Cycle



Risk Handling

Risk Handling is “the process that identifies, evaluates, selects, and implements options to set risk at acceptable levels given program constraints and objectives. This includes the specifics on what should be done, when it should be accomplished, who is responsible, and the associated cost. The most appropriate strategy is selected from these handling options.”

DoD Deskbook

Risk Handling Options (PMO)

- **Risk Avoidance** is a technique that reduces risk through the modification or elimination of those operational requirements that cause the risks.
- **Risk Transfer** is the technique that involves the reduction of risk exposure by the re-allocation of risk from one part of the system to another or the re-allocation of risks between the Government and the prime contractor.
- **Risk Control** is a technique in which active steps are taken to reduce the likelihood of a risk occurring and to reduce the potential impact on the program.
- **Risk Assumption** is a technique in which the managers acknowledge that risks exist and will be accepted without any special effort to control them

Risk Handling Engineering Responsibilities

	RISK AVOIDANCE	RISK TRANSFER	RISK CONTROL	RISK ASSUMPTION
PMO	OPR	OPR	OPR	OPR
DCMC	SUPPORT	SUPPORT	**SUPPORT**	SUPPORT

- Independent evaluation to the PMO of the effectiveness of all the contractor's risk handling methods.
- Engineering risk handling tasks primarily contribute to the PMO's risk control.

Risk Handling Methods

Risk handling activities and methods vary according to risk assessment.

- Examples of these activities/methods include process proofing, product audits, system evaluations, and data analysis.
- The intensity, frequency and schedule of risk handling methods chosen should be called out in the risk handling plan.

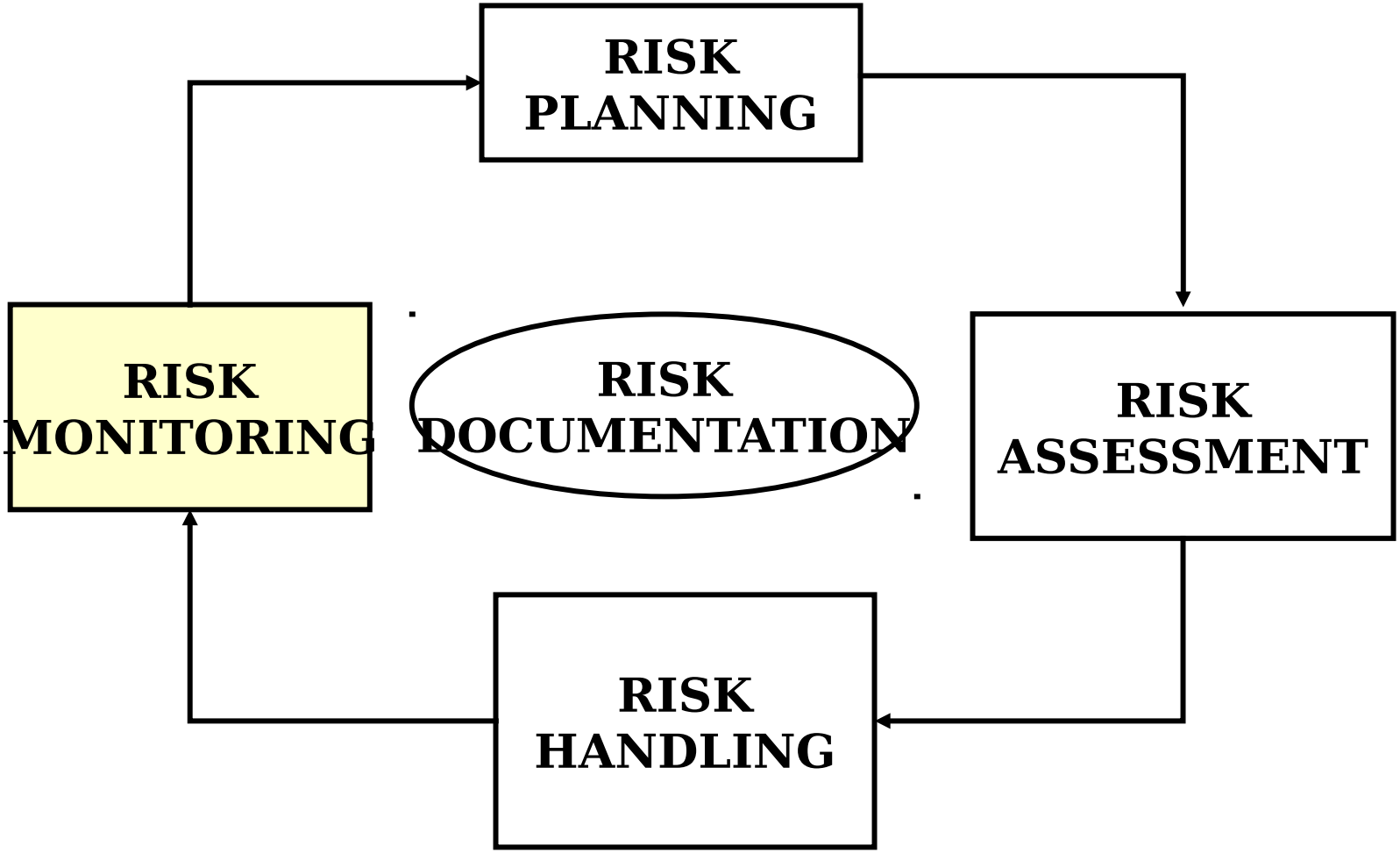
Risk Handling Plans

- ***Must* address each supplier at any given location regardless of the complexity or simplicity of the acquisition.**
- ***Must* be tailored to the differing work and operating environments, i.e., program managed, individual contracts, or supplier facility.**
- The sophistication and length of the plans ***may depend on*** the volume of business at a supplier facility, product criticality, and the complexity of a specific acquisition…
- A functional risk handling plan ***can be a stand alone plan*** that covers a single process or ***be part of an integrated plan,*** such as a program plan or system plan.

Risk Handling Plans

- Risk handling may be performed on a ***contract specific basis,*** when the requirement is not applicable to all contracts within the supplier facility, ***or on a facility basis,*** when the system or key process is common to all contracts within the supplier facility.
- ***CAOs may use handling plan templates to address multiple suppliers***, providing the templates are tailored to describe the specific systems, key processes, and/or key product characteristics unique to each supplier.
- For suppliers of non-critical/non-complex supplies, ***actions may be limited to*** validating schedule commitments and final inspection or testing, and ***may require minimum surveillance.***

Risk Management Cycle



Risk Monitoring

Risk Monitoring is “the process that systematically tracks and evaluates the performance of risk handling actions against established metrics throughout the acquisition process and develops further risk handling options, as appropriate.

DoD Deskbook

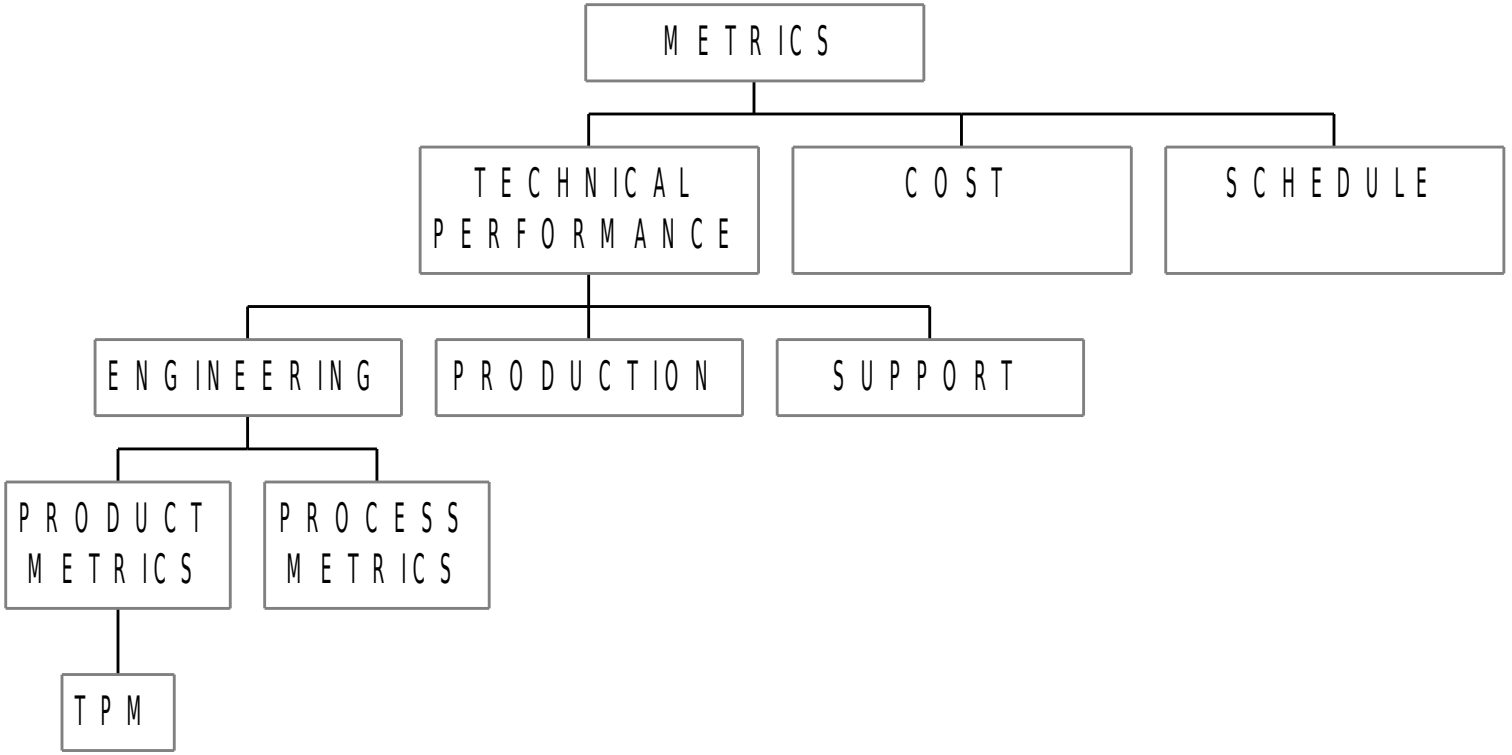
Risk Monitoring

“The operations team or functional specialists must track and evaluate the supplier performance relating to systems and key processes addressed in the risk handling plan.”

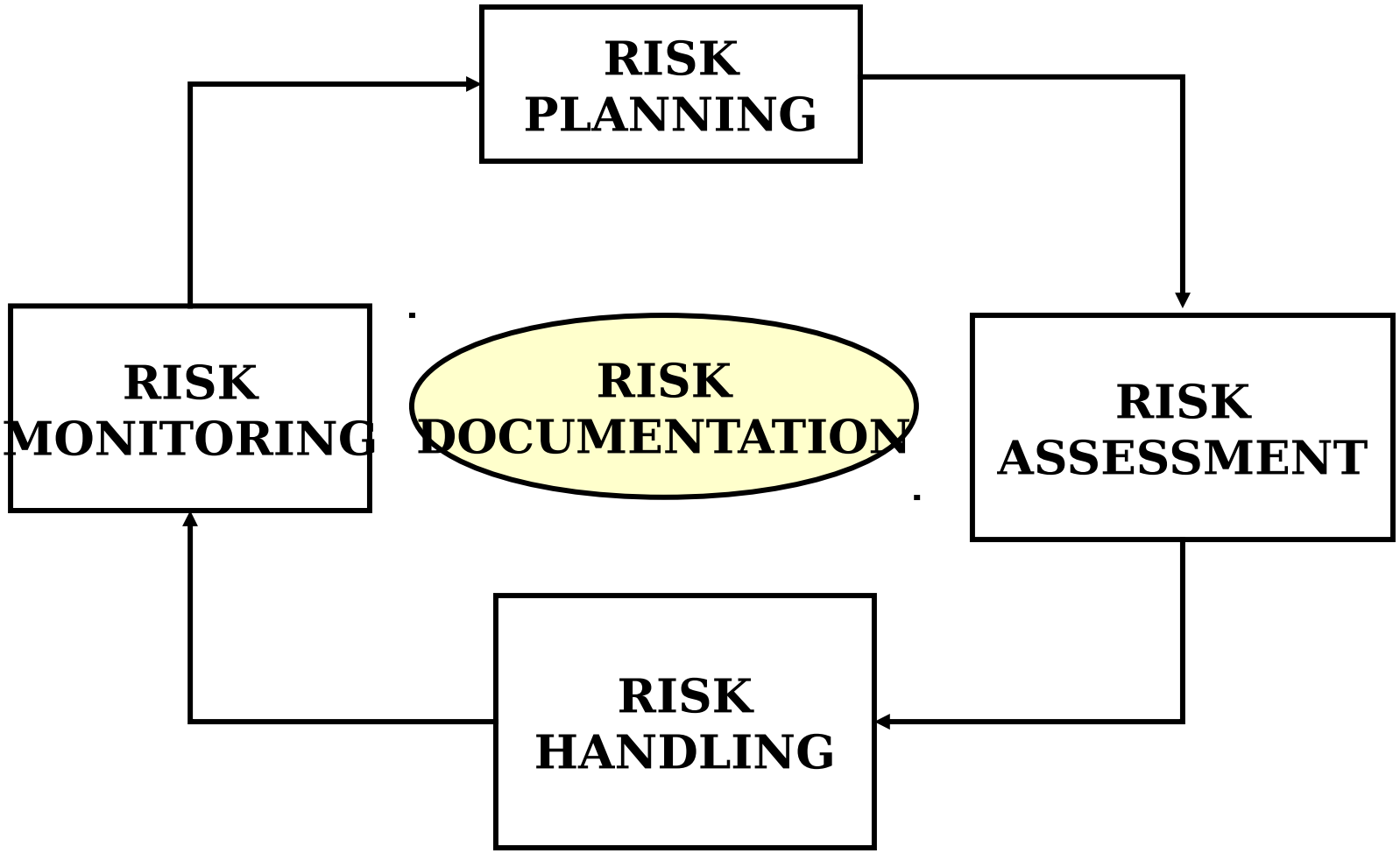
“The operations team or functional specialist must adjust risk handling methods, intensity, and frequency based on the performance of supplier systems and key processes.”

“The risk monitoring data analysis results must be used to update risk assessments and handling plans.”

Risk Monitoring Program Management Indicators-Metrics



Risk Management Cycle



Risk Documentation

Risk documentation "is recording, maintaining, and reporting risk assessments, risk-handling analysis and plans, and risk-monitoring results. It includes all plans, reports for the Program Manager and decision authorities, and risk reporting forms that may be internal to the program management office."

DoD Deskbook

Risk Documentation

“Operations team or functional specialists must record and maintain documentation on risk planning, risk assessments, risk handling, and risk monitoring results (trend analyses, performance data, systems reviews, etc.), and updates, as applicable.”

Summary

DCMC's Supplier Risk Management Program:

- Will enhance decision making at all levels throughout DCMC.
- Is standardized, yet flexible--professional judgement will be key!
- Will assist our Customers with acquisition decisions.
- Is consistent with DoD Risk Management Policy.
- Implements RBA Task Force recommendation.
- Is critical to DCMC's Success--**Now and in the Future**!

Summary

- **The CAO engineers should:**
  - Develop a risk handling plan that effectively monitors the contractor's Risk Management functions and technical performance requirements.
  - Continuously perform independent evaluations of contractor's key system and process risks.
  - Provide the PMO with insight into technical program risks.

DoD & DCMC Training Sources Risk Management

1. Risk Management Course (AFMC) http://sasweb.brooks.af.mil
2. Risk Management (AFMC) (SAS Virtual Schoolhouse) http://sasweb.brooks.af.mil
3. Decision Risk Analysis Course (ALMC) http://almc.army.mil/catalog/catalog/sp_DRAC.html
4. Cost Risk Analysis (ALMC) http://almc.army.mil/catalog/catalog/sp_BFC206.html
5. DCMDE-OOW Risk Management Training Guide (Vol. 1-4)
6. Risk Management Guide for DoD Acquisition: http://www.dsmc.dsm.mil/pubs/gdbks/risk_management.htm